

FEB 27 2002

Docket No. 23623-7060

Certificate of Mailing/Transmission (37 C.F.R. § 1.8(a))

[X] Pursuant to 37 C.F.R. § 1.8, I hereby certify that this paper and all enclosures are being deposited with the United States Postal Service as first class mail on the date indicated below in an envelope addressed to the Commissioner for Patents and Trademarks, Washington D.C. 20231

Dated: February 11, 2002

Name of Person Certifying: Jocelyn L. Lee

Printed Name: Jocelyn L. Lee

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Volker SCHELLENBERGER, et al. Assignee: Genencor Interantional, Inc.
Filing Date: October 10, 2001 Examiner: Not Yet Assigned
Serial No.: 09/975,139 Group Art Unit: 1645
Title: INFORMATION RICH LIBRARIES

BOX SEQUENCE

Commissioner for Patents and Trademarks
Washington, D.C. 20231

STATEMENT REGARDING SEQUENCE LISTING UNDER 37 C.F.R. §§ 1.821-1.825

Dear Sir:

The Applicants hereby declare that the content of the computer-readable copy of the Sequence Listing furnished herewith is the same as the written copy of the Sequence Listing.

Date: February 11, 2002.

Respectfully submitted,

By: David W. Maher

David W. Maher
Registration No. 40,077

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23623-7060 Seq Listing

SEQUENCE LISTING

<110> Genencor International, Inc.
Schellenberger, Volker
Naki, Donald
Morrison, Thomas B.

<120> INFORMATION RICH LIBRARIES

<130> 23623-7060

<140> US 09/975,139

<141> 2001-10-10

<150> US 60/239,476

<151> 2000-10-10

<160> 10

<170> FastSEQ for windows version 4.0

<210> 1

<211> 269

<212> PRT

<213> Bacillus lentus

<220>

<223> Savinase - subtilisin protease

<400> 1

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			20					25					30		
Thr	Gly	Ile	Ser	Thr	His	Pro	Asp	Leu	Asn	Ile	Arg	Gly	Gly	Ala	Ser
		35					40					45			
Phe	Val	Pro	Gly	Glu	Pro	Ser	Thr	Gln	Asp	Gly	Asn	Gly	His	Gly	Thr
	50					55					60				
His	Val	Ala	Gly	Thr	Ile	Ala	Ala	Leu	Asn	Asn	Ser	Ile	Gly	Val	Leu
65					70					75					80
Gly	Val	Ala	Pro	Ser	Ala	Glu	Leu	Tyr	Ala	Val	Lys	Val	Leu	Gly	Ala
				85					90					95	
Ser	Gly	Ser	Gly	Ser	Val	Ser	Ser	Ile	Ala	Gln	Gly	Leu	Glu	Trp	Ala
			100					105					110		
Gly	Asn	Asn	Gly	Met	His	Val	Ala	Asn	Leu	Ser	Leu	Gly	Ser	Pro	Ser
		115					120					125			
Pro	Ser	Ala	Thr	Leu	Glu	Gln	Ala	Val	Asn	Ser	Ala	Thr	Ser	Arg	Gly
		130				135					140				
Val	Leu	Val	Val	Ala	Ala	Ser	Gly	Asn	Ser	Gly	Ala	Gly	Ser	Ile	Ser
145					150					155					160
Tyr	Pro	Ala	Arg	Tyr	Ala	Asn	Ala	Met	Ala	Val	Gly	Ala	Thr	Asp	Gln
			165					170						175	
Asn	Asn	Asn	Arg	Ala	Ser	Phe	Ser	Gln	Tyr	Gly	Ala	Gly	Leu	Asp	Ile
			180					185					190		
Val	Ala	Pro	Gly	Val	Asn	Val	Gln	Ser	Thr	Tyr	Pro	Gly	Ser	Thr	Tyr
		195					200					205			
Ala	Ser	Leu	Asn	Gly	Thr	Ser	Met	Ala	Thr	Pro	His	Val	Ala	Gly	Ala
	210					215					220				
Ala	Ala	Leu	Val	Lys	Gln	Lys	Asn	Pro	Ser	Trp	Ser	Asn	Val	Gln	Ile
225					230					235					240
Arg	Asn	His	Leu	Lys	Asn	Thr	Ala	Thr	Ser	Leu	Gly	Ser	Thr	Asn	Leu

23623-7060 Seq Listing

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 245 250 255
 260 265

<210> 2
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial subtilisin reference protein sequence (Fig. 1)

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 1 5 10 15

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 <211> 382
 <212> PRT
 <213> *Aeromonas sobria*

<220>
 <223> AmpC protein

<400> 3
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 20 25 30
 Val Asp Asp Ala Ile Arg Pro Val Leu Lys Gln His Arg Ile Pro Gly
 35 40 45
 Met Ala Val Ala Val Leu Lys Gly Gly Gln Ala His Tyr Phe Asn Tyr
 50 55 60
 Gly Leu Ala Asp Val Ala Thr Gly Ala Lys Val Asn Glu Gln Thr Leu
 65 70 75 80
 Phe Glu Ile Gly Ser Val Ser Lys Thr Tyr Thr Ala Thr Leu Gly Ala
 85 90 95
 Tyr Ala Val Val Lys Gly Gly Phe Lys Leu Asp Asp Gln Val Ser Gly
 100 105 110
 His Ala Pro Trp Leu Lys Gly Ser Ala Phe Asp Gly Ile Thr Met Ala
 115 120 125
 Glu Leu Ala Thr Tyr Ser Ala Gly Gly Leu Pro Leu Gln Phe Pro Asp
 130 135 140
 Glu Val Asp Ser Ser Asp Thr Met Arg Ala Tyr Tyr Arg His Trp Thr
 145 150 155 160
 Pro Pro Tyr Gln Ala Gly Thr Gln Arg Gln Tyr Ser Asn Pro Ser Ile
 165 170 175
 Gly Leu Phe Gly His Leu Ala Ala Ser Ser Leu Gln Gln Pro Phe Ser
 180 185 190
 Thr Leu Met Glu Gln Thr Leu Leu Pro Ala Leu Gly Leu Glu His Thr
 195 200 205
 Tyr Leu Gln Val Pro Glu Ala Ala Met Ala Arg Tyr Ala Phe Gly Tyr
 210 215 220
 Ser Lys Glu Asp Lys Pro Ile Arg Val Asn Pro Gly Met Leu Ala Asp
 225 230 235 240
 Glu Ala Tyr Gly Ile Lys Thr Gly Ser Ala Asp Leu Leu Ala Phe Val
 245 250 255
 Lys Ala Asn Ile Ser Gly Val Asp Asp Lys Ala Leu Gln Gln Ala Ile
 260 265 270
 Ala Leu Thr His Thr Gly Phe Tyr Arg Ile Gly Glu Met Ser Gln Gly
 275 280 285

23623-7060 Seq Listing

Leu Gly Trp Glu Ser Tyr Ala Tyr Pro Val Ser Glu Gln Thr Leu Leu
 290 295 300
 Ala Gly Asn Ser Pro Ala Val Ser Leu Lys Ala Asn Pro Val Thr Lys
 305 310 315 320
 Phe Glu Thr Pro Ala Ala Pro Gly Ala Met Arg Leu Tyr Asn Lys Thr
 325 330 335
 Gly Ser Thr Gly Gly Phe Gly Ala Tyr Val Ala Phe Val Pro Ala Lys
 340 345 350
 Gly Ile Gly Ile Val Met Leu Ala Asn Arg Asn Tyr Pro Ile Glu Ala
 355 360 365
 Arg Val Ser Ala Ala His Ala Ile Leu Ser Gln Leu Ala Pro
 370 375 380

<210> 4

<211> 381

<212> PRT

<213> Enterobacter cloacae

<220>

<223> AmpC protein

<400> 4

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 Ala Asn Thr Ile Thr Pro Leu Met Lys Ala Gln Ser Val Pro Gly Met
 35 40 45
 Ala Val Ala Val Ile Tyr Gln Gly Lys Pro His Tyr Tyr Thr Phe Gly
 50 55 60
 Lys Ala Asp Ile Ala Ala Asn Lys Pro Val Thr Pro Gln Thr Leu Phe
 65 70 75 80
 Glu Leu Gly Ser Ile Ser Lys Thr Phe Thr Gly Val Leu Gly Gly Asp
 85 90 95
 Ala Ile Ala Arg Gly Glu Ile Ser Leu Asp Asp Ala Val Thr Arg Tyr
 100 105 110
 Trp Pro Gln Leu Thr Gly Lys Gln Trp Gln Gly Ile Arg Met Leu Asp
 115 120 125
 Leu Ala Thr Tyr Thr Ala Gly Gly Leu Pro Leu Gln Val Pro Asp Glu
 130 135 140
 Val Thr Asp Asn Ala Ser Leu Leu Arg Phe Tyr Gln Asn Trp Gln Pro
 145 150 155 160
 Gln Trp Lys Pro Gly Thr Thr Arg Leu Tyr Ala Asn Ala Ser Ile Gly
 165 170 175
 Leu Phe Gly Ala Leu Ala Val Lys Pro Ser Gly Met Pro Tyr Glu Gln
 180 185 190
 Ala Met Thr Thr Arg Val Leu Lys Pro Leu Lys Leu Asp His Thr Trp
 195 200 205
 Ile Asn Val Pro Lys Ala Glu Ala His Tyr Ala Trp Gly Tyr Arg
 210 215 220
 Asp Gly Lys Ala Val Arg Val Ser Pro Gly Met Leu Asp Ala Gln Ala
 225 230 235 240
 Tyr Gly Val Lys Thr Asn Val Gln Asp Met Ala Asn Trp Val Met Ala
 245 250 255
 Asn Met Ala Pro Glu Asn Val Ala Asp Ala Ser Leu Lys Gln Gly Ile
 260 265 270
 Ala Leu Ala Gln Ser Arg Tyr Trp Arg Ile Gly Ser Met Tyr Gln Gly
 275 280 285
 Leu Gly Trp Glu Met Leu Asn Trp Pro Val Glu Ala Asn Thr Val Val
 290 295 300
 Glu Gly Ser Asp Ser Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu
 305 310 315 320

23623-7060 Seq Listing

Val Asn Pro Pro Ala Pro Pro Val Lys Ala Ser Trp Val His Lys Thr
 325 330 335
 Gly Ser Thr Gly Gly Phe Gly Ser Tyr Val Ala Phe Ile Pro Glu Lys
 340 345 350
 Gln Ile Gly Ile Val Met Leu Ala Asn Thr Ser Tyr Pro Asn Pro Ala
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 Arg Val Glu Ala Ala Tyr His Ile Leu Glu Ala Leu Gln
 370 375 380

<210> 5

<211> 381

<212> PRT

<213> Escherichia coli

<220>

<223> AmpC protein

<400> 5

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 Asn Arg Thr Ile Thr Pro Leu Met Glu Gln Glu Ala Ile Pro Gly Met
 35 40 45
 Ala Val Ala Val Ile Tyr Gln Gly Lys Pro Tyr Tyr Phe Thr Trp Gly
 50 55 60
 Lys Ala Asp Ile Ala Asn Asn His Pro Val Thr Gln Gln Thr Leu Phe
 65 70 75 80
 Glu Leu Gly Ser Val Ser Lys Thr Phe Asn Gly Val Leu Gly Gly Asp
 85 90 95
 Ala Ile Ala Arg Gly Glu Ile Lys Leu Ser Asp Pro Val Thr Lys Tyr
 100 105 110
 Trp Pro Glu Leu Thr Gly Lys Gln Trp Gln Gly Ile Arg Leu Leu His
 115 120 125
 Leu Ala Thr Tyr Thr Ala Gly Gly Leu Pro Leu Gln Ile Pro Asp Asp
 130 135 140
 Val Arg Asp Lys Ala Ala Leu Leu His Phe Tyr Gln Asn Trp Gln Pro
 145 150 155 160
 Gln Trp Thr Pro Gly Ala Lys Arg Leu Tyr Ala Asn Ser Ser Ile Gly
 165 170 175
 Leu Phe Gly Glu Leu Ala Val Lys Pro Ser Gly Met Ser Tyr Glu Glu
 180 185 190
 Ala Met Thr Arg Arg Val Leu Gln Pro Leu Lys Leu Ala His Thr Trp
 195 200 205
 Ile Thr Val Pro Gln Asn Glu Gln Lys Asp Tyr Ala Trp Gly Tyr Arg
 210 215 220
 Glu Gly Lys Pro Val His Val Ser Pro Gly Gln Leu Asp Ala Glu Ala
 225 230 235 240
 Tyr Gly Val Lys Ser Ser Val Ile Asp Met Ala Arg Trp Val Gln Ala
 245 250 255
 Asn Met Asp Ala Ser His Val Gln Glu Lys Thr Leu Gln Gln Gly Ile
 260 265 270
 Ala Leu Ala Gln Ser Arg Tyr Trp Arg Ile Gly Asp Met Tyr Gln Gly
 275 280 285
 Leu Gly Trp Glu Met Leu Asn Trp Pro Leu Lys Ala Asp Ser Ile Ile
 290 295 300
 Asn Gly Ser Asp Ser Lys Val Ala Leu Ala Ala Leu Pro Ala Val Glu
 305 310 315 320
 Val Asn Pro Pro Ala Pro Ala Val Lys Ala Ser Trp Val His Lys Thr
 325 330 335
 Gly Ser Thr Gly Gly Phe Gly Ser Tyr Val Ala Phe Val Pro Glu Lys
 340 345 350

23623-7060 Seq Listing

Asn Leu Gly Ile Val Met Leu Ala Asn Lys Ser Tyr Pro Asn Pro Val
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 Arg Val Glu Ala Ala Trp Arg Ile Leu Glu Lys Leu Gln
 370 375 380

<210> 6
 <211> 390
 <212> PRT
 <213> Ochrobactrum anthropi

<220>
 <223> AmpC protein

<400> 6
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 Asp Leu Arg Arg Ile Val Asp Glu Thr Val Arg Pro Leu Met Ala Glu
 35 40 45
 Gln Lys Ile Pro Gly Met Ala Val Ala Ile Thr Ile Asp Gly Lys Ser
 50 55 60
 His Phe Phe Gly Tyr Gly Val Ala Ser Lys Glu Ser Gly Gln Lys Val
 65 70 75 80
 Thr Glu Asp Thr Ile Phe Glu Ile Gly Ser Val Ser Lys Thr Phe Thr
 85 90 95
 Ala Met Leu Gly Gly Tyr Gly Leu Ala Thr Gly Ala Phe Ser Leu Ser
 100 105 110
 Asp Pro Ala Thr Lys Trp Ala Pro Glu Leu Ala Gly Ser Phe Asp
 115 120 125
 Lys Ile Thr Met Leu Asp Leu Gly Thr Tyr Thr Pro Gly Gly Leu Pro
 130 135 140
 Leu Gln Phe Pro Asp Ala Val Thr Asp Asp Ser Met Leu Ala Tyr
 145 150 155 160
 Phe Lys Asn Trp Lys Pro Asp Tyr Pro Ala Gly Thr Gln Arg Arg Tyr
 165 170 175
 Ser Asn Pro Ser Ile Gly Leu Phe Gly Tyr Leu Ala Ala Arg Ser Met
 180 185 190
 Asp Lys Pro Phe Asp Val Leu Met Glu Gln Lys Leu Leu Pro Ala Phe
 195 200 205
 Gly Leu Lys Asn Thr Phe Ile Asn Val Pro Glu Ser Gln Met Lys Asn
 210 215 220
 Tyr Ala Tyr Gly Tyr Ser Lys Ala Asn Lys Pro Ile Arg Val Ser Gly
 225 230 235 240
 Gly Ala Leu Asp Ala Gln Ala Tyr Gly Ile Lys Thr Thr Ala Leu Asp
 245 250 255
 Leu Ala Arg Phe Val Glu Leu Asn Ile Asp Ser Ser Ser Leu Glu Leu
 260 265 270
 Asp Phe Gln Lys Ala Val Ala Ala Thr His Thr Gly Tyr Tyr His Val
 275 280 285
 Gly Ala Asn Asn Gln Gly Leu Gly Trp Glu Phe Tyr Asn Tyr Pro Thr
 290 295 300
 Ala Leu Lys Thr Leu Leu Ala Gly Asn Ser Ser Asp Met Ala Leu Lys
 305 310 315 320
 Ser His Lys Ile Glu Lys Phe Asp Thr Pro Arg Gln Pro Ser Ala Asp
 325 330 335
 Val Trp Leu Asn Lys Thr Gly Ser Thr Asn Gly Phe Gly Ala Tyr Ala
 340 345 350
 Ala Phe Ile Pro Ala Lys Lys Thr Gly Ile Val Leu Leu Ala Asn Arg
 355 360 365
 Asn Tyr Pro Ile Asp Glu Arg Ile Lys Ala Ala Tyr Arg Ile Leu Gln
 370 375 380

23623-7060 Seq Listing

Ala Leu Asp Asn Lys Gln
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<210> 7

<211> 397

<212> PRT

<213> *Pseudomonas aeruginosa*

<220>

<223> AmpC protein

<400> 7

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			20					25					30		
Arg	Leu	Lys	Ala	Leu	Val	Asp	Ala	Val	Gln	Pro	Val	Met	Lys	Ala	
		35					40					45			
Asn	Asp	Ile	Pro	Gly	Leu	Ala	Val	Ala	Ile	Ser	Leu	Lys	Gly	Glu	Pro
	50				55						60				
His	Tyr	Phe	Ser	Tyr	Gly	Leu	Ala	Ser	Lys	Glu	Asp	Gly	Arg	Arg	Val
65					70					75				80	
Thr	Pro	Glu	Thr	Leu	Phe	Glu	Ile	Gly	Ser	Val	Ser	Lys	Thr	Phe	Thr
				85					90					95	
Ala	Thr	Leu	Ala	Gly	Tyr	Ala	Leu	Thr	Gln	Asp	Lys	Met	Arg	Leu	Asp
			100					105					110		
Asp	Arg	Ala	Ser	Gln	His	Trp	Pro	Ala	Leu	Gln	Gly	Ser	Arg	Phe	Asp
		115					120					125			
Gly	Ile	Ser	Leu	Leu	Asp	Leu	Ala	Thr	Tyr	Thr	Ala	Gly	Gly	Leu	Pro
	130					135					140				
Leu	Gln	Phe	Pro	Asp	Ser	Val	Gln	Lys	Asp	Gln	Ala	Gln	Ile	Arg	Asp
145					150					155				160	
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				165					170					175	
Tyr	Ser	Asn	Pro	Ser	Ile	Gly	Leu	Phe	Gly	Tyr	Leu	Ala	Ala	Arg	Ser
		180						185					190		
Leu	Gly	Gln	Pro	Phe	Glu	Arg	Leu	Met	Glu	Gln	Gln	Val	Phe	Pro	Ala
		195					200					205			
Leu	Gly	Leu	Glu	Gln	Thr	His	Leu	Asp	Val	Pro	Glu	Ala	Ala	Leu	Ala
	210					215					220				
Gln	Tyr	Ala	Gln	Gly	Tyr	Gly	Lys	Asp	Asp	Arg	Pro	Leu	Arg	Val	Gly
225					230					235				240	
Pro	Gly	Pro	Leu	Asp	Ala	Glu	Gly	Tyr	Gly	Val	Lys	Thr	Ser	Ala	Ala
				245					250					255	
Asp	Leu	Leu	Arg	Phe	Val	Asp	Ala	Asn	Leu	His	Pro	Glu	Arg	Leu	Asp
			260					265					270		
Arg	Pro	Trp	Ala	Gln	Ala	Leu	Asp	Ala	Thr	His	Arg	Gly	Tyr	Tyr	Lys
		275					280					285			
Val	Gly	Asp	Met	Thr	Gln	Gly	Leu	Gly	Trp	Glu	Ala	Tyr	Asp	Trp	Pro
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305					310				315					320	
Gln	Pro	His	Arg	Ile	Ala	Arg	Leu	Pro	Ala	Pro	Gln	Ala	Leu	Glu	Gly
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Gln	Arg	Leu	Leu	Asn	Lys	Thr	Gly	Ser	Thr	Asn	Gly	Phe	Gly	Ala	Tyr
			340					345					350		
Val	Ala	Phe	Val	Pro	Gly	Arg	Asp	Leu	Gly	Leu	Val	Ile	Leu	Ala	Asn
		355					360					365			
Arg	Asn	Tyr	Pro	Asn	Ala	Glu	Arg	Val	Lys	Ile	Ala	Tyr	Ala	Ile	Leu
	370					375					380				
Ser	Gly	Leu	Glu	Gln	Gln	Gly	Lys	Val	Pro	Leu	Lys	Ala			
385					390					395					

23623-7060 Seq Listing

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 <211> 379
 <212> PRT
 <213> *Salmonella enteritidis*

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 <223> AmpC protein

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 Ser Thr Ile Lys Pro Leu Met Ala Gln Gln Asp Ile Pro Gly Met Ala
 35 40 45
 Val Ala Val Ser Val Lys Gly Lys Pro Tyr Tyr Phe Asn Tyr Gly Phe
 50 55 60
 Ala Asp Ile Gln Ala Lys Gln Pro Val Thr Glu Asn Thr Leu Phe Glu
 65 70 75 80
 Leu Gly Ser Val Ser Lys Thr Phe Thr Gly Val Leu Gly Ala Val Ser
 85 90 95
 Val Ala Lys Lys Glu Met Ala Leu Asn Asp Pro Ala Ala Lys Tyr Gln
 100 105 110
 Pro Glu Leu Ala Leu Pro Gln Trp Lys Gly Ile Thr Leu Leu Asp Leu
 115 120 125
 Ala Thr Tyr Thr Ala Gly Gly Leu Pro Leu Gln Val Pro Asp Ala Val
 130 135 140
 Lys Ser Arg Ala Asp Leu Asn Phe Tyr Gln Gln Trp Gln Pro Ser
 145 150 155 160
 Arg Lys Pro Gly Asp Met Arg Leu Tyr Ala Asn Ser Ser Ile Gly Leu
 165 170 175
 Phe Gly Ala Leu Thr Ala Asn Ala Ala Gly Met Pro Tyr Glu Gln Leu
 180 185 190
 Leu Thr Ala Arg Ile Leu Ala Pro Leu Gly Leu Ser His Thr Phe Ile
 195 200 205
 Thr Val Pro Glu Ser Ala Gln Ser Gln Tyr Ala Tyr Gly Tyr Lys Asn
 210 215 220
 Lys Lys Pro Val Arg Val Ser Pro Gly Gln Leu Asp Ala Glu Ser Tyr
 225 230 235 240
 Gly Val Lys Ser Ala Ser Lys Asp Met Leu Arg Trp Ala Glu Met Asn
 245 250 255
 Met Glu Pro Ser Arg Ala Gly Asn Ala Asp Leu Glu Met Ala Met Tyr
 260 265 270
 Leu Ala Gln Thr Arg Tyr Tyr Lys Thr Ala Ala Ile Asn Gln Gly Leu
 275 280 285
 Gly Trp Glu Met Tyr Asp Trp Pro Gln Gln Lys Asp Met Ile Ile Asn
 290 295 300
 Gly Val Thr Asn Glu Val Ala Leu Gln Pro His Pro Val Thr Asp Asn
 305 310 315 320
 Gln Val Gln Pro Tyr Asn Arg Ala Ser Trp Val His Lys Thr Gly Ala
 325 330 335
 Thr Thr Gly Phe Gly Ala Tyr Val Ala Phe Ile Pro Glu Lys Gln Val
 340 345 350
 Ala Ile Val Ile Leu Ala Asn Lys Asn Tyr Pro Asn Thr Glu Arg Val
 355 360 365
 Lys Ala Ala Gln Ala Ile Leu Ser Ala Leu Glu
 370 375

<210> 9
 <211> 388

23623-7060 Seq Listing

<212> PRT

<213> Yersinia enterocolitica

<220>

<223> AmpC protein

<400> 9

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 Val Ala Thr Ile Val Asn Asn Thr Leu Thr Pro Leu Leu Glu Lys Gln
 35 40 45
 Gly Ile Pro Gly Met Ala Val Ala Val Phe Tyr Asp Gly Lys Pro Gln
 50 55 60
 Phe Phe Asn Tyr Gly Met Ala Asp Ile Lys Ala Gly Arg Pro Val Thr
 65 70 75 80
 Glu Asn Thr Leu Phe Glu Leu Gly Ser Val Ser Lys Thr Phe Thr Gly
 85 90 95
 Val Ala Gly Glu Tyr Ala Met Gln Thr Gly Ile Met Asn Leu Asn Asp
 100 105 110
 Pro Val Thr Glu Tyr Ala Pro Glu Leu Thr Gly Ser Gln Trp Lys Asp
 115 120 125
 Val Lys Met Leu His Leu Ala Thr Tyr Thr Ala Gly Gly Leu Pro Leu
 130 135 140
 Gln Leu Pro Asp Ser Val Thr Asp Gln Lys Ser Leu Trp Gln Tyr Tyr
 145 150 155 160
 Gln Gln Trp Gln Pro Gln Trp Ala Pro Gly Val Met Arg Asn Tyr Ser
 165 170 175
 Asn Ala Ser Ile Gly Leu Phe Gly Ala Leu Ala Val Lys Arg Ser Gln
 180 185 190
 Leu Thr Phe Glu Asn Tyr Met Lys Glu Tyr Val Phe Gln Pro Leu Lys
 195 200 205
 Leu Asp His Thr Phe Ile Thr Ile Pro Glu Ser Met Gln Ser Asn Tyr
 210 215 220
 Ala Trp Gly Tyr Lys Asp Gly Gln Pro Val Arg Val Thr Leu Gly Met
 225 230 235 240
 Leu Gly Glu Glu Ala Tyr Gly Val Lys Ser Thr Ser Gln Asp Met Val
 245 250 255
 Arg Phe Met Gln Ala Asn Met Asp Pro Glu Ser Leu Pro Ala Gly Asn
 260 265 270
 Asp Lys Leu Lys Glu Ala Ile Ile Ala Ser Gln Ser Arg Tyr Phe Gln
 275 280 285
 Ala Gly Asp Met Phe Gln Gly Leu Gly Trp Glu Met Tyr Ser Trp Pro
 290 295 300
 Ile Asn Pro Gln Gly Val Ile Ala Asp Ser Gly Asn Asp Ile Ala Leu
 305 310 315 320
 Lys Pro Arg Lys Val Glu Ala Leu Val Pro Ala Gln Pro Ala Val Arg
 325 330 335
 Ala Ser Trp Val His Lys Thr Gly Ala Thr Asn Gly Phe Gly Ala Tyr
 340 345 350
 Ile Val Phe Ile Pro Glu Glu Lys Val Gly Ile Val Met Leu Ala Asn
 355 360 365
 Lys Asn Tyr Pro Asn Pro Val Arg Val Gln Ala Ala Tyr Asp Ile Leu
 370 375 380
 Gln Ala Leu Arg
 385

<210> 10

<211> 391

<212> PRT

<213> Artificial Sequence

23623-7060 Seq Listing

<220>

<223> Consensus sequence derived from alignment of SEQ

ID NOS:3-9

<221> VARIANT

<222> 1, 2, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
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 60, 61, 68, 75, 78, 108, 110, 112, 119, 123, 128, 152, 154,
 155, 160, 168, 170, 174, 187, 199, 202, 203, 207, 217

<223> Xaa = Unknown

<221> VARIANT

<222> 222, 223, 232, 234, 243, 256, 263, 269, 270, 271, 272, 273,
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 324, 326, 329, 330, 332, 333, 335, 337, 338, 350, 363, 377,
 378, 381, 385, 388, 391

<223> Xaa = Unknown

<400> 10

Xaa	Xaa	Met	Lys	Lys	Ser	Leu	Xaa	Xaa	Xaa	Leu	Leu	Xaa	Xaa	Xaa	Xaa	
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Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Ala	Xaa	Xaa	Xaa	Xaa	Glu	Xaa	
			20				25							30		
Gln	Leu	Ala	Xaa	Ile	Val	Asp	Xaa	Thr	Ile	Xaa	Pro	Leu	Met	Xaa	Xaa	
		35				40						45				
Gln	Xaa	Ile	Pro	Gly	Met	Ala	Val	Ala	Val	Xaa	Xaa	Xaa	Gly	Lys	Pro	
	50					55					60					
His	Tyr	Phe	Xaa	Tyr	Gly	Leu	Ala	Asp	Ile	Xaa	Ala	Gly	Xaa	Pro	Val	
65				70					75					80		
Thr	Glu	Gln	Thr	Leu	Phe	Glu	Leu	Gly	Ser	Val	Ser	Lys	Thr	Phe	Thr	
				85				90						95		
Gly	Val	Leu	Gly	Gly	Tyr	Ala	Ile	Ala	Lys	Gly	Xaa	Met	Xaa	Leu	Xaa	
			100					105					110			
Asp	Pro	Val	Thr	Lys	Tyr	Xaa	Pro	Glu	Leu	Xaa	Gly	Ser	Gln	Trp	Xaa	
		115					120					125				
Gly	Ile	Thr	Met	Leu	Asp	Leu	Ala	Thr	Tyr	Thr	Ala	Gly	Gly	Leu	Pro	
	130					135					140					
Leu	Gln	Val	Pro	Asp	Ala	Val	Xaa	Asp	Xaa	Xaa	Ala	Ser	Leu	Leu	Xaa	
145				150					155					160		
Tyr	Tyr	Gln	Asn	Trp	Gln	Pro	Xaa	Trp	Xaa	Pro	Gly	Thr	Xaa	Arg	Leu	
			165					170						175		
Tyr	Ser	Asn	Ala	Ser	Ile	Gly	Leu	Phe	Gly	Xaa	Leu	Ala	Ala	Lys	Ser	
		180						185					190			
Ser	Gly	Met	Pro	Phe	Glu	Xaa	Leu	Met	Xaa	Xaa	Arg	Val	Leu	Xaa	Pro	
		195					200					205				
Leu	Gly	Leu	Asp	His	Thr	Phe	Ile	Xaa	Val	Pro	Glu	Ala	Xaa	Xaa	Ala	
	210					215					220					
Asn	Tyr	Ala	Trp	Gly	Tyr	Lys	Xaa	Gly	Xaa	Lys	Pro	Val	Arg	Val	Ser	
225				230						235					240	
Pro	Gly	Xaa	Leu	Asp	Ala	Glu	Ala	Tyr	Gly	Val	Lys	Thr	Ser	Ser	Xaa	
			245						250					255		
Asp	Met	Leu	Arg	Phe	Val	Xaa	Ala	Asn	Met	Asp	Pro	Xaa	Xaa	Xaa	Xaa	
		260						265					270			
Xaa	Xaa	Xaa	Xaa	Xaa	Leu	Xaa	Gln	Ala	Ile	Ala	Leu	Thr	Gln	Ser	Arg	
		275					280					285				
Tyr	Tyr	Arg	Ile	Gly	Asp	Met	Xaa	Gln	Gly	Leu	Gly	Trp	Glu	Met	Tyr	
	290					295					300					
Xaa	Trp	Pro	Ile	Xaa	Xaa	Xaa	Thr	Leu	Ile	Ala	Gly	Xaa	Ser	Ser	Xaa	
305						310				315					320	
Val	Ala	Leu	Xaa	Pro	Xaa	Pro	Val	Xaa	Xaa	Leu	Xaa	Xaa	Pro	Xaa	Pro	
			325							330				335		
Xaa	Xaa	Lys	Ala	Ser	Trp	Val	His	Lys	Thr	Gly	Ser	Thr	Xaa	Gly	Phe	
			340					345					350			

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Gly	Ala	Tyr	Val	Ala	Phe	Ile	Pro	Glu	Lys	Xaa	Ile	Gly	Ile	Val	Met
		355					360					365			
Leu	Ala	Asn	Lys	Asn	Tyr	Pro	Asn	Xaa	Xaa	Arg	Val	Xaa	Ala	Ala	Tyr
	370					375					380				
Xaa	Ile	Leu	Xaa	Ala	Leu	Xaa									
385					390										